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This paper discusses six of the more important services the university could perform in the promotion and improvement of junior college technical education. Technical education is moving from the technical institute to the junior college, and the change is affecting both the training and the college. The research resources of the university could be of service in this transition by (1) directing research efforts in the teaching and administration of technical programs, (2) collecting and analyzing data on the characteristics of technical students, both sociological and academic, (3) developing, with the junior college, a model for continuous and longitudinal evaluation of the effectiveness of the technical programs, (4) helping in the design and development of new curriculums to keep pace with emerging technologies, (5) aiding in the modernization and up-dating of existing curriculums, in a three-way arrangement among industry, the university, and the college, and (6) assisting in preparing programs of special relevancy to disadvantaged urban youth, keeping in mind their particular social and psychological deprivations. The college and the university should make a science of the design, development, conduct, and evaluation of junior college technical education. (HH)

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THE ROLE OF THE UNIVERSITY IN COMMUNITY COLLEGE TECHNICAL EDUCATION

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Abstract

This paper deals with several of the more important roles being assumed by universities in the promotion and improvement of community college technical education. It is pointed out that two-year college technical education, once almost exclusively found in the technical institutes, is now moving into the public community-junior college arena. This mix of technical education and the community college is creating effects which are changing certain aspects of both technical education and the public junior college.

Associated with this recent movement in technical education are the roles being taken on by the universities. The six roles identified and considered in this paper are: 1. teacher education 2. research 3. evaluation 4. design and development of new curriculums 5. updating existing curriculums 6. design and development of technical education programs for urban youth.

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The involvement of universities in various segments of american society has steadily increased in the past century. The inauguration of the Morrill Act of 1862 was one of the earlier efforts to encourage the development of institutions of higher learning which would lend their expertise to the preparation of people for occupations other than theology, law, and medicine. That act provided the initial impetus for higher education to give serious attention to the practical arts and world of work. Once the precedence had been established, it became easier for universities to become engaged in various activities that were not of a traditional academic nature. This trend has progressed to the point where various institutions and agencies are continuously knocking on the doors of the universities, asking for their help in finding solutions to their many and diverse problems. The reaction to these demands varies from one university to another, but almost every university has become involved with its larger community in attempts to find solutions to problems of its region and state.

Now that technical education has moved into the public community college area, certain technical education leaders have sought the involvement of the universities. Community college technical education, besides having the problems associated with technical institute technical education, has additional problems associated with community college type

education. It is felt by many that some of these problems can be attacked most effectively if the technical educators can find support and assistance from the universities. Some of the roles of the modern university that relate to the interests of community college technical educators deal with: (a) teacher education (b) research (c) evaluation (d) design and development of new curriculums (e) updating existing curriculums (f) assistance in the establishment of technical education programs for ghetto youth. This paper takes the position that it is from these six roles that the university can be of greatest service to technical education in the community college. Let us examine them in greater detail.

A. Teacher Education

In spite of the fact that teaching has been a recognized occupation and profession for hundreds of years, evidence shows that virtually nothing has been done toward developing a science of teacher education. Moss (1:26)described that dilemma in this way:

> We need a system of verified principles which will permit us to understand and control the teacher education process. At present we are still operating programs primarily on the basis of tradition, 'convention', wisdom, and personal experience. This does not imply that current teacher education practices are necessarily bad, only that we really don't know their worth, and that we cannot be reasonably confident about judging suggested means for improving present practices.

It is here suggested that some of the very complex and persistent problems associated with community college technical education teacher preparation must be submitted to a long-range systematic research effort conducted by the universities. Moss (1:3) proposed one research model which has considerable merit in that it provides direction to research efforts in the area of technical teacher education.

Using the Moss model as a guide for the direction of research into technical teacher preparation, the activities can be subdivided into the following broad categories:

1. Studies relating to the objectives of technical teacher preparation programs.

2. Studies dealing with the human resources from which potential technical teachers can be drawn.

3. Studies dealing with the varieties of technical teacher education programs that could be devised.

4. Studies aimed at developing effective methods of recruiting the right individuals into technical teacher preparation programs.

5. Studies designed to evaluate the educational experience being provided by ongoing technical teacher preparation programs.

Miller (2:30) proposed a system approach to designing programs in technical teacher education. Based on his model, he proceeded to analyze several aspects of technical teacher preparation programs, including the following: 1. Role of the technical teacher. 2. Selection and recruitment of

technical teachers. 3. Technical teacher training programs. 4. Evaluation of technical teachers.

It can be seen that certain similarities exist between the Moss and the Miller models. This is a welcomed indication that technical educators are becoming more seriously concerned about developing long range models for the study of the many processes and activities involved with technical teacher preparation programs. As stated before, the use of such models as a framework from which various research efforts can embark, can hopefully result in some perceptable movement toward making a science out of technical teacher preparation. The role of the universities is clear here, they should spearhead this improvement movement and carry on the leadership needed in the overall research effort.

Roney (3) recently cited the need for the establishment of relevant professional education for administrators dealing with technical education programs, inservice education for employed technical professors, and preservice education for future technical education teachers. There has been some progress in all of these directions, but much more needs to be done. The Purdue plan for the preparation of technical teachers, as described by Arnold (4:9-11), is an excellent example of an attempt to meet the need for more technical teachers. The Purdue curriculum is a third and fourth year program which

draws its input from graduates of associate-degree technical programs. Therefore, it is seen that the technical programs of the two-year colleges, in addition to providing technicians for the world of work, is increasingly being looked to as an important source of potential technical teachers. One of the most innovative aspects of this program is the cooperative internship-the device through which the potential teacher may obtain a one year work experience in his area of speciality and also receive academic credit for it. Other technical teacher programs, which look to the graduate of two year college technology programs for their inputs, are being planned in several universities.

It seems to this writer that this is a hopeful beginning of getting away from those stultifying elements of traditionalism that have blocked real progress in the matter of recruiting, training, and modernizing technical teachers. Some leaders in technical education are now prepared to question the real relevancy of requiring the technical teacher to have a first degree in engineering. Also overdue for examination is the requirement that the technical teacher have a large number of years of industrial experience to his credit. It has yet to be proven that engineers are the best technical teachers, and also unproven is that a long experience in industry is going to assure us that we are hiring either a good or an up-to-date instructor.

One of the few studies that delved into the characteristics of those technical education teachers that were considered successful by their administrators was conducted by Storm (5:7). Two of his findings, which relate to the kinds of backgrounds commonly found in those technical teachers that were considered to be successful were as follows (5:7):

> Technical instructors who enter teaching from a background of technician work in industry are generally considered more successful than those who enter with a background in engineering.
>
> and
>
> More high-rated instructors possess advanced degrees in education than lower rated instructors.

It seems that more studies of this nature should be conducted by universities , so as to further determine the relevancy of an engineering background to effective teaching in the technician area. Furthermore, universities should seek to become more involved in technician teacher preparation programs which have a well conceived approach to evaluation. This evaluation plan, not evident in any program seen by this writer, should be built in as an integral part of the program, but at the same time be financially independent of it. In this way it would take on the characteristics of research and inquiry and not simply become a mechanism for the collection of data. The evaluation effort should begin with identification of potential technical teachers,

continue on with the evaluation of the program and follow through with an evaluation of the graduate for at least the first five years of his teaching career. The type of teacher produced by these programs should also be compared, in tangible ways, with technical teachers that have other backgrounds in terms of education, training and experience. One or two carefully designed and carried out longitudinal studies of this type would be a major step toward knocking down the remaining walls of traditionalism that have been plaguing technical education almost since its inception. The technical teachers preparation effort is probably one of the most important roles the universities can play in the betterment of two-year college technical education.

B. Research

A list of suggestions for research and development activities in technical education teacher preparation was compiled by Miller (2:23-32). These suggestions were submitted by a number of the nation's foremost technical education researchers, teacher educators and administrators who served as consultants on the Miller project. The recommendations he obtained fell into a total of 24 categories. Koschler developed a modest list of research needs in technical education programs (6:19), and it covered 14 areas. Other lists of research needs and

priorities are in existence. But what are the most pressing areas of inquiries in which research should first turn? The answer to the question would invariably depend upon the interests and biases of the person responding to it. Therefore, the following statements obviously reflects this writer's perception of those topics believed to be of greater importance.

Broadly speaking, a major research thrust should be aimed at learning more about technician type students and their environments. There has been a number of studies in student and school environmental characteristics (7:690-730) (8:811-845) (9:536-562), but relatively little of this past effort is directly applicable to technician students in the two-year college and technical institute. One such study is presently in progress, which is entitled "A Comparison of Environmental Press and Selected Student *Characteristics in a Community College* and Technical Institute" (10). The population used in this research consists of students enrolled in four career curriculums in a large technical institute and a medium size community college (both public supported). The curriculums are Electrical Technology, Nursing, Business Administration and Secretarial Science. A total of about 900 students were involved in the beginning phase of this study. Phase one of

of this study included the administration of several instruments to each entering student in the four curriculums prior to attending their first class session. These established the basis for obtaining information in the initial part of the investigation before the students were subjected to the influence of the college environment. An interim follow-up has been conducted during the spring of 1968 and the final administration of instruments will be conducted during April and May of 1969. The data obtained from this study will provide a basis for identification of those elements between certain student characteristics and institutional characteristics that appear most often in those students that have completed their programs. The results will hopefully also provide indications of those combined student and institutional characteristics which are most often found in students dropping out of their programs. If clear-cut trends, which are statistically valid and reliable, are identified by this study, it might serve as the launching point for a similar study conducted on a wider scale, both geographically and in types of programs. Other studies of this type, which attempt to find ways of matching students to programs and institutions are sorely needed. Although the two-year college is the arena for these studies, it is logical for the universities to assume the role of leadership in their design and conduct.

C. Evaluation

Much more effort is needed in the area of evaluation. Evaluation in many instances has meant nothing more than directing inquiries into attrition rates and whether or not graduates of a program obtained a position in industry. The contention here is that the use of such devices, with the claim that they are satisfactory methods of program evaluation, is based on shortsightedness on the part of the technical educators. This writer has learned of more than one case where the technical educators in certain programs took pride in the fact that less than half of the enrolling freshmen graduated from that course two years later. This represents a shameful waste of human resources. Certainly this calls for an attempt to devise a model of evaluation that would encompass all aspects of the program from student selection to long range follow-up, as shown in Fig. 1.

The development of a model for the evaluation of community college technical education which is both continuous and longitudinal in nature can be a joint endeavor between the university and the two-year colleges. An additional role of the university in such an activity could include its overall administration, as well as the translation of the mass of accumulated data into suggestions and proposals that could lead

A MODEL FOR CONTINUOUS-LONGITUDINAL VALUATION

OF

COMMUNITY COLLEGE TECHNICAL EDUCATION

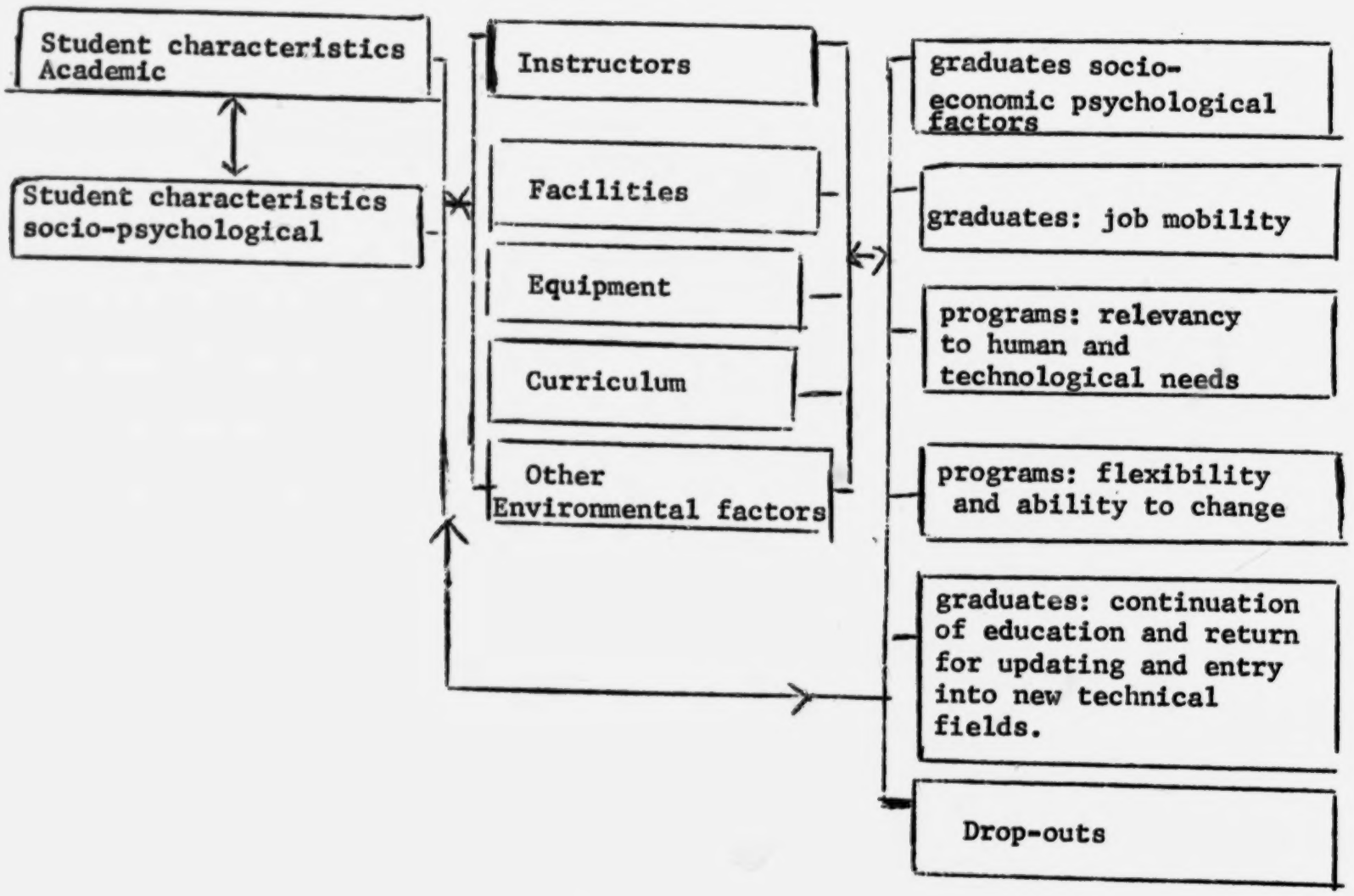

Figure 1

to action—action that would produce changes which would improve the process of educating and preparing technicians for the future. Certain precautions must be noted however. The overall evaluation must be based on the goals of the technical educators and not on the sole goals of the evaluator(s). Stating this in another way, the evaluator's first task is to identify the goals of the technical educators. Then the evaluator(s) should focus on determining the extent to which the educational program is meeting the objectives of the technical educators (such as producing a competent and well adjusted technician) while at the same time determining whether any damaging changes are taking place (such as developing a dislike for a certain subject) during the process. The best evaluation of a curriculum is in terms of its effects upon the student, and this type of investigation must be longitudinal in nature.

D. Design and Development of New Curriculum:

The universities can also play a role in the design and development of new curriculums. Nelson (11) has indicated how special research centers could serve as agencies for the development of programs in emerging technologies. Perhaps these centers could enter into cooperative arrangements with universities and community colleges for the purpose of identifying new curriculums in community college technical education. Roles of this type could be assumed by the Center for Vocational and Technical Education at The Ohio State University (12), as well as other government supported research centers.

E. Updating of Existing Curriculums

The updating of existing curriculums is just as high on the research priority list as are studies dealing with the emergence of new programs. The universities can provide the thrust for developing curriculum modernization studies. Such efforts would require cooperation between selected elements in industry, the community colleges and the universities. One model for updating two-year college technical programs has been recently designed and tested by this writer (13:17-21) (14:15-16), and its overall characteristics are shown in Fig. 2. This same model can also be utilized as an approach to the development of new curriculums.

F. Technical Education for Urban Youth

The provision of technical education for urban youth presents a new set of problems that are superimposed on the already existing problems confronting technical educators. That is, the problems of preparing competent instructors, designing schemes for continuous and total evaluation, designing and updating curriculums so as to insure relevancy, and the recruitment of students are also present with this type of technical education. It can be said that these problems are even more difficult to solve when the goals of the programs are set for urban youth. Superimposed on the obstacles just stated

A MODEL FOR CONDUCTING STUDIES FOR
UPDATING EXISTING CURRICULUMS

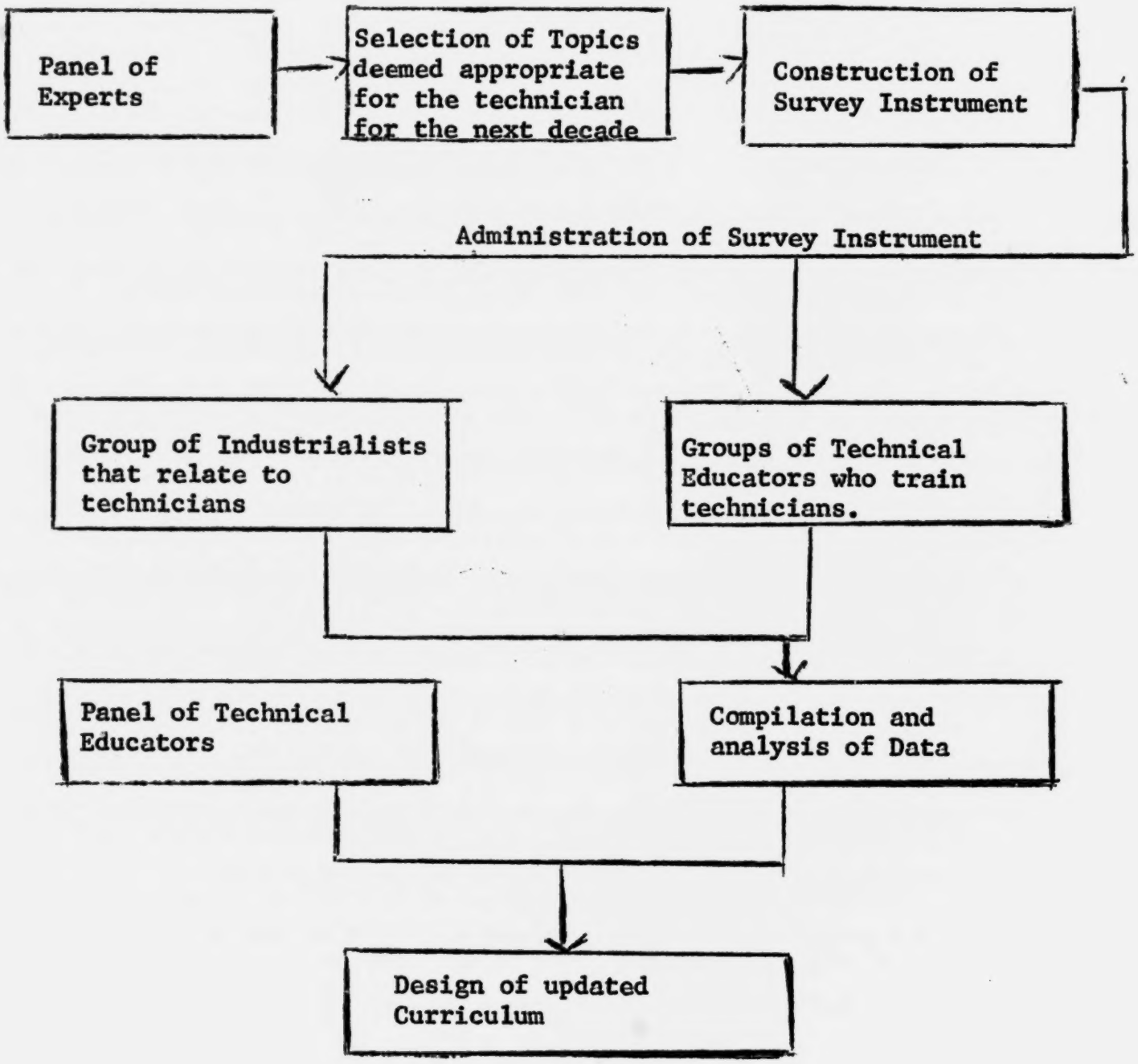
Panel of Experts
Selection of Topics deemed appropriate for the technician for the next decade
Construction of Survey Instrument
Administration of Survey Instrument
Group of Industrialists that relate to technicians
Groups of Technical Educators who train technicians.
Panel of Technical Educators
Compilation and analysis of Data
Design of updated Curriculum

Figure 2

are very severe problems dealing with the psychology of disadvantaged youth as it relates to society, education, training, and the world of work. Many intelligent technical educators are beginning to recognize the futility of expecting ghetto youth to "lift themselves by their bootstraps" into the world of middle class values. There are a few in the vanguard of technical education leadership who sense the need to design programs around the <u>needs of individuals rather than around the needs of industry.</u>

This reversal in the approach to the design of technical education programs calls for sweeping changes in all aspects of the effort—new kinds of instructors, increased diversity in the level of curriculums, the introduction of technician work practicums with academic credit, an entirely new approach to the supporting work in mathematics and sciences, and a new kind of general education that uses no books. New Programs should be moving in at least some of the directions indicated above. The plea being made here is that a systematic, continuous and longitudinal evaluation system be incorporated as an integral part of each experimental or demonstration curriculum. Let's make a science out of community college technical education program design and development. Again, the role of the university is clear—a cooperative agency in the design, conduct, and evaluation of these programs.

Conclusions:

In the past, the educational stronghold of two-year technical education was the technical institute. That era is now well behind us and the main thrust for technician education is found in the public community-junior college. This institution provides a new setting for technical education, an environment in which there is great potential for a true student mix. Furthermore, general education is viewed with greater acceptance and worth in the community college, perhaps wisely so in view of the fact that preparing youth for leisure and family living are considered as being just as important as preparing them for the world of work.

The emergence of the public community college upon the technical education scene has created a new kind of technical education. It is a historical fact that the blending of an existing type of education (technical education in this instance) into a new kind of educational institution (i.e. the public community-junior college) usually results in a modification of both the educational program and the institution. Hopefully, we will obtain a better kind of technical education in an improved version of the public community-junior college. A vital aspect of this new variety of technical education is the increased involvement of the university. This paper has addressed

itself to only six of the many roles the university could assume in an attempt to promote, improve and expand community college technical education. Hopefully, the role of the university in the days ahead will be even greater than that found today.

Bibliography:

1. Moss, Jerome Jr. Review of Research in Vocational Technical Teacher Education. Minneapolis, Minnesota: Minnesota Research Coordination Unit in Occupational Education, University of Minnesota. September, 1967.

2. Miller, Aaron J. Research Priorities in Technical Teacher Education: A Planning Model. Columbus, Ohio: The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University. October, 1967.

3. Roney, Maurice W. "Professional Education for Technical School Administrators and Teachers." Presented at the Annual meeting of the American Technical Education Association and the National Association of Industrial Teacher Educators on December 5, 1965 in Miami, Florida.

4. Arnold, Joseph P. "A Long-Range Solution to the Shortage of Teachers." An article in Technical Education News (xxvii) January, 1968. New York: McGraw-Hill Book Company.

5. Storm, George. "Survey Explores Characteristics of Successful Teachers of Technical Education." An article in Technical Education News (XXV No.2), February, 1966. New York: McGraw-Hill Book Company.

6. Koschler, Theodore A. "Checklist of Research Needs in Technical Education Programs." An article in Technical Education News (XXV, NO.2) February 1966. New York: McGraw-Hill Book Company

7. Stern, George C. "Environments for Learning" A Chapter in The American College (edited by Nevitt Sanford). New York: John Wiley and Sons, Inc. 1966.

8. Webster, Harold Freedman, Mervin B. and Heist, Paul "Personality Changes in College Students." A Chapter in The American College.

9. Brown, Donald. "Personality, College Environments and Academic Productivity." A Chapter in The American College.

10. Gillie, Angelo C. and Kievit, Mary " A Comparison of Environmental Press and Selected Student Characteristics in a Community College and Technical Institute." A Study funded by the U.S. Office of Education (Grant Number OFG-0-8-008007 2817 (010)) under the Grant Authority of P.L. 83-531 as amended P.L. 89-10.

11. Nelson, Arthur H. " A Coordinated Research Effort-Developing Technical Education Programs in Engineering Technologies." A paper presented at the Annual Meeting of the American Technical Education Association on December 5, 1966 in Denver, Colorado.

12. The Center for Research and Leadership Development in Vocational and Technical Education. The Ohio State University. Columbus, Ohio.

13. Gillie, Angelo C. "A New Approach to Curriculum Construction for Occupational Programs." A paper in the Research Bulletin, Fall, 1967 (Vol. XII No. 1): Graduate School of Education, Rutgers-The State University.

14. Gillie, Angelo C. "Planning Future Content of Electronics Curriculums." A paper in Technical Education News December, 1966 (XXVI No.2) New York: McGraw-Hill Book Company.